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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,638

10/19/2006

Mitchell M. Jackson

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3878

26645

7590

06/10/2009

THE LUBRIZOL CORPORATION
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EXAMINER

HINES, LATOSHA D

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

06/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,638	Applicant(s) JACKSON ET AL.	
	Examiner LATOSHA HINES	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. This is the second non-final Office action based on the 10/595638 application filed on October 19, 2006.
2. Claims 1-13 are pending and have been fully considered. Claims 14-16 have been cancelled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over MALFER et al. (US 5,725,612) in view of KOLP (US 5,663,457).

MALFER et al. teaches the additive components can be added or blended into or with the base fuels individually per se and/or as components used in forming preformed additive combinations and/or subcombinations. It has been discovered that by using a di-substituted phenol which has only one site for the Mannich reaction to occur, i.e., only one ortho- or para- position being unsubstituted, products are obtained which are more effective at reducing intake valve deposits on an active/active basis compared to Mannich base products derived from a hydroxyaromatic compound having two or three reactive sites. The term "active" means the total mass of amine-containing products, regardless of chemical identity, thus compounds of the present invention are more effective

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at reducing intake valve deposits than compounds derived from a hydroxyaromatic compound substituted in only one position when both Mannich products contain equivalent amounts of amine-containing products (column 1 lines 35-57). Because of outstanding effectiveness in control (i.e., reduction or minimization) of the weight of deposits formed on intake valves during engine operation, an especially preferred embodiment involves use of N,N-dimethyl-1,3-propanediamine as the polyamine, formaldehyde as the aldehyde (column 2 lines 31-58)

Likewise preformed additive concentrates, in which higher proportions of the additive components are blended together usually with one or more diluents or solvents, can be formed so that subsequently the concentrate can be blended with a base fuel in the course of forming the finished fuel composition (see col. 12 lines 7-15). The Mannich base products of this invention are preferably used in combination with a liquid carrier or induction aid. Such carriers can be of various types, such as for example liquid poly- α -olefin oligomers, liquid alcohols or polyols, liquid esters, and similar liquid carriers or solvents. Mixtures of two or more such carriers or solvents can be employed (see col. 5 lines 47-59). When formulating the fuel composition the Mannich product and carrier fluid (with or without other additives) are employed in amounts sufficient to reduce or inhibit deposit formation in an internal combustion engine. Thus the fuels will contain minor amounts of the Mannich base detergent/dispersant and of the liquid carrier fluid proportioned as above that control or reduce formation of engine deposits,

especially intake system deposits, and most especially intake valve deposits in spark-ignition internal combustion engines (see col. 8 lines 48-60). The alkylation of the substituted hydroxyaromatic compound is typically performed in the presence of an alkylating catalyst (see col. 3 lines 57-60).

MALFER et al. teaches the limitations of the claims other than the composition containing a conventional polyisobutylene (PIB). However, KOLP teaches the difference.

KOLP teaches a conventional PIB which is characterized by very low terminal vinylidene groups (I) and isomers in acid catalyzed equilibrium therewith (II). Conventional PIB further comprises a distinct tri-substituted terminal olefin group (III) which is nearly absent or present in only a low level in high vinylidene PIB. The distinct terminal group III is a 2-butene in which the 2-carbon is tri-substituted (column 3 lines 38-45). A conventional PIB is condensed under influence of a cation exchange resin in acid form with a hydroxyaromatic to produce a polybutenyl phenol hydroxyaromatic in high yield (column 2 lines 53-60). Conventional PIB's have number average molecular weight in the range of 300-5000, but the preferred number average molecular weight is in the range of 500-2000. KOLP discloses the percent in conventional PIB in Table I located below:

TABLE 1

PIB Terminal Groups	Percent in Conventional PIB	Percent in High Vinylidene PIB
$ \begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \quad \\ -\text{C}-\text{CH}_2-\text{C}=\text{CH}_2 \\ \\ \text{CH}_3 \end{array} $ <p style="text-align: center;">I</p>	4-5%	50-90%
$ \begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \quad / \quad \backslash \\ -\text{C}-\text{CH}-\text{C} \\ \quad \backslash \quad / \\ \text{CH}_3 \quad \text{CH}_3 \end{array} $ <p style="text-align: center;">II</p>		6-35%
$ \begin{array}{c} \text{CH}_3 \\ \\ -\text{CH}_2-\text{C}=\text{CH}-\text{CH}_3 \end{array} $ <p style="text-align: center;">III</p>	63-67%	absent or minor
$ \begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \quad \quad / \quad \backslash \\ -\text{CH}-\text{C}=\text{C} \\ \quad \quad \backslash \quad / \\ \quad \quad \text{CH}_3 \end{array} $ <p style="text-align: center;">IV</p>	22-28%	1-15%
$ \begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \quad \text{CH}_3 \\ \quad \quad / \quad \backslash \\ -\text{C}=\text{C}-\text{CH} \\ \quad \quad \backslash \quad / \\ \quad \quad \text{CH}_3 \end{array} $ <p style="text-align: center;">IVA</p>		
$ \begin{array}{c} \text{CH}_2 \\ \\ -\text{CH}_2-\text{C}-\text{CH}_2- \end{array} $ <p style="text-align: center;">V</p>	5-8%	0-5%
Other	0-10%	0-10%

It would have been obvious to one of ordinary skill in the art to have combined the conventional polyisobutylenes of KOLP with the vinylindene polyisobutylenes of MALFER et al. because it is prima facie obvious to combine

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two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the same purpose. *In re Kerkhoven*, 205 USPQ 1069.

Applicant argues that the prima facie case of obviousness is overcome by the data found in Table 1 of the specification. The examiner cannot ascertain if unexpected results are obtained over the huge range of hydroxyaromatic compounds, aldehyde, and amines.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LATOSHA HINES whose telephone number is 571-270-5551. The examiner can normally be reached on Monday thru Thursday from 8 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LATOSHA HINES/
Examiner, Art Unit 1797

/Cephia D. Toomer/
Primary Examiner, Art Unit 1797